

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-12 (canceled)

Claims 13-17 (canceled)

18. (New) A record management system to manage data, the record management system comprising:

a processing engine to generate a record structure foundation from the data, where the record structure foundation includes at least one query map record and at least one dimension index record; and

a record structure foundation storage unit coupled to the processing engine and configured to house the record structure foundation.

19. (New) The record management system of claim 18, where the record structure foundation storage unit includes a master table index storage unit.

20. (New) The record management system of claim 19, where the master table index storage unit is configured to house each dimension index record and where the record structure foundation storage unit further includes a query map storage unit to house each query map record.

21. (New) The record management system of claim 20, where each query map record is configured (i) to identify a submitted query and (ii) to identify each dimension object and each measure object called for in the submitted query.

22. (New) The record management system of claim 20, where the master table index storage unit is configured to house one dimension index record for each unique dimension value provided in response to a submitted query.

23. (New) The record management system of claim 20, further comprising:  
a master table storage unit coupled to the processing engine through a system bus and configured to house at least one master table record.

24. The record management system of claim 23, where each master table record is configured to include (i) a query-record identifier, (ii) a dimension value associated with a dimension object, and (iii) a measure value associated with a measure object.

25. (New) The record management system of claim 24, where each dimension index record is configured (i) to identify a unique dimension value provided in response to a submitted query, (ii) to identify a dimension object that is associated with the unique dimension value in that dimension index record, and (iii) to identify each query-record identifier in the master table storage unit that includes the unique dimension value.

26. (New) The record management system of claim 18, where a processor unit is configured to execute processor readable instructions stored in a computer readable medium to implement the processing engine.

27. (New) In a record management system having a record structure foundation storage unit coupled to a processing engine, where the record structure foundation storage unit includes a master table index storage unit and a master table storage unit, a method to update the master table index storage unit, the method comprising:

(a) presenting in the master table storage unit a first master table record and a second master table record, where the first master table record includes a first master table record dimension value and a first query-record identifier that identifies the first master table record and where the second master table record includes a second master table record dimension value and a second query-record identifier that identifies the second master table record;

(b) presenting in the master table index storage unit a first dimension index record that includes the first master table record dimension value and the first query-record identifier;

(c) selecting the second master table record;

(d) determining whether the second master table record dimension value exists in the first dimension index record; and

(e)(1) if the second master table record dimension value does not exist in the first dimension index record, then creating a second dimension index record that includes the second master table record dimension value and the second query-record identifier, and

(e)(2) if the second master table record dimension value exists in the first dimension index record, then adding to the first dimension index record the second query-record identifier.

28. (New) The method of claim 27, further comprising:

presenting in the master table storage unit a third master table record, where the third master table record includes a third master table record dimension value and a third query-record identifier that identifies the third master table record;

- (f) selecting the third master table record;
- (g) determining whether the third master table record dimension value exists in the master table index storage unit; and
- (h) if the third master table record dimension value does not exist in the master table index storage unit, then creating a third dimension index record that includes the third master table record dimension value and the third query-record identifier.

29. (New) The method of claim 28, where each dimension index record is part of a record structure foundation generated by the processing engine.

30. (New) In a record management system having a record structure foundation storage unit coupled to a processing engine, a method to construct a layout mapping of cells, the method comprising:

- (a) receiving formatting information that identifies each dimension object to be represented on a first axis, identifies each dimension object to be represented on a second axis, and identifies each measure object to be characterized by the identified dimension objects;

- (b) selecting the first axis;

- (c) compiling a set of dimension value combinations from each dimension object to be represented on the first axis, where each dimension value combination in the set includes one dimension value from each dimension object to be represented on the first axis;

- (d) for each combination of dimension values in the set of dimension value combinations, utilizing the dimension value combination as a comparison dimension value combination to determine whether a combination of master table records exists that contains the same dimension values as are in the comparison dimension value combination;

(e) if a combination of master table records exists that contains the same dimension values as are in the comparison dimension value combination, then utilizing this combination of master table records to determine whether each master table record in the said combination of master table records includes a measure object that is identical to a measure object identified in the received formatting information; and

(f) if each master table record in the said combination of master table records includes a measure object that is identical to a measure object identified in the received formatting information, then designating the combination of dimension values from the said combination of master table records as a group to be represented on the first axis.

31. The method of claim 30, further comprising:

(g) selecting the second axis;

(h) repeating steps (c) through (f) by substituting the second axis in the place of the first axis; and

(i) designating a set of cells to correspond to each group to be represented on the first axis and designating a cell from each set of cells to correspond to each group to be represented on the second axis.

32. (New) The method of claim 31, where the first axis is a horizontal axis, where the second axis is a vertical axis, where each dimension value combination is a unique dimension value combination, and where the comparison dimension value combination and the combination of master table records that contains the same dimension values as are in the comparison dimension value combination each contain no more than one dimension value.

33. (New) In a record management system having a record structure foundation storage unit coupled to a processing engine, a method to generate a multi-dimensional view of records without constructing a multi-dimensional record structure, the method comprising:

generating a record structure foundation;

generating a layout mapping of cells from the record structure foundation; and,

converting the layout mapping of cells into a multi-dimensional view.

34. (New) The method of claim 33, where the record structure foundation includes at least one query map record and at least one dimension index record.

35. (New) The method of claim 33, where the record structure foundation storage unit includes a master table index storage unit and a master table storage unit, where generating a multi-dimensional record structure foundation includes updating the master table index storage unit, and where updating the master table index storage unit includes

(a) presenting in the master table storage unit a first master table record and a second master table record, where the first master table record includes a first master table record dimension value and a first query-record identifier that identifies the first master table record and where the second master table record includes a second master table record dimension value and a second query-record identifier that identifies the second master table record;

(b) presenting in the master table index storage unit a first dimension index record that includes the first master table record dimension value and the first query-record identifier;

(c) selecting the second master table record;

(d) determining whether the second master table record dimension value exists in the first dimension index record; and

(e)(1) if the second master table record dimension value does not exist in the first dimension index record, then creating a second dimension index record that includes the second master table record dimension value and the second query-record identifier, and

(e)(2) if the second master table record dimension value exists in the first dimension index record, then adding to the first dimension index record the second query-record identifier.

36. (New) The method of claim 33, where the multi-dimensional view includes a number of measure cells and a number of dimension values associated with each of the dimension objects and where the number of measure cells is less than the product of the number of dimension values associated with each of the dimension objects.

37. (New) The method of claim 33, where the multi-dimensional view includes at least one dimension value associated with one dimension object being represented on an axis and includes at least one unique pair of measure cells associated with dimension values and, if a dimension value associated with one dimension object being represented on an axis does not coexist with another dimension value associated with another dimension object being represented on the same axis, then not forming that unique pair of measure cells as part of the multidimensional view.

38. (New) The method of claim 33, where the multi-dimensional view does not include at least one of any extraneous cells and unnecessary cell locations.

39. (New) The method of claim 33, where the multi-dimensional view is based on records from a first query, the method further comprising:

receiving records from a second query;

updating the record structure foundation with information from the second query and information from the records from the second query;

generating an updated layout mapping of cells from the updated record structure foundation; and,

converting the updated layout mapping of cells into a multi-dimensional view.

40. (New) The method of claim 33, where the multi-dimensional view includes a first axis and a second axis, where converting the layout mapping of cells into a multi-dimensional view includes displaying a first dimension object on the first axis, displaying a second dimension object on the second axis, and where the first dimension object is hierarchically related to the second dimension object.

41. (New) The method of claim 33, where the record management system further includes a meta-data storage unit coupled to the processing engine and where the meta-data storage unit does not include any rules specifying hierarchical relationships between different dimension objects and their respective dimension values prior to generating the layout mapping of cells from the record structure foundation.